

2019 ACES Robotic Equipment Expenditures EDP Methodology

The Annual Capital Expenditures Survey (ACES) is a mandatory annual collection that provides the sole source of detailed comprehensive statistics on investment in buildings and other structures, machinery, and equipment by private nonfarm businesses in the United States.

ACES is a sample survey of approximately 50,000 companies with paid employees and 20,000 companies with no paid employees. Companies with 500 or more employees are included in the sample each year.

ACES data are collected at the company or firm level. A single NAICS code is assigned to the firm at the time of sampling based on their primary business activity.

The estimates are published at the national level by 2-digit NAICS sector and select 3-digit and 4-digit NAICS industries in all covered NAICS sectors for employer businesses.

ACES published estimates

Firms report for all industries in which they operate and have capital expenditures.

Nonresponse is accounted for by sample weight adjustment.

Robotic Equipment Expenditures Estimates

Robotic equipment expenditures was asked for the firm and not for the industries in which the firm operates, therefore robotic estimates are tabulated based on NAICS assigned to the firm.

Missing Robotic Equipment Expenditures

For the 0.1 percent of companies that indicated an investment in robotic equipment in their write-in field, we applied a ratio of robotic equipment

expenditures to total equipment expenditures from a company that had reported a value > '0' in the same NAICS industry with approximately the same payroll.

For the 0.6 percent of companies that reported capital expenditures for equipment but did not respond to the robotic expenditures question - if the capital expenditures for equipment for the sampled NAICS was '0', a secondary NAICS industry for the company was set to the NAICS with equipment capital expenditures if businesses operating in that industry were likely to use robots. Overall, we applied a ratio to the equipment expenditures obtained by calculating the average ratio of robotic expenditures as a percent of equipment expenditures by strata (based on payroll), size and NAICS industry.

Robotic estimates were summed and weighted based on the sample weight adjusted for nonresponse of the capital expenditure estimate.

The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance applied (Approval ID: CBDRB-FY21-235).